MISSOURI DEPARTMENT OF CONSERVATION
FISHERIES FIELD OFFICES

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701 NE College Drive
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Fax: 816/271-3107

Chillicothe Office
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660/646-6122
Fax: 660/646-1354

Kansas City Region
Kansas City Regional Office
3424 NW Duncan Rd.
Blue Springs, MO 64015
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Central Regional Office
1907 Hillcrest Drive
Columbia, MO 65201-6205
573/884-6861
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Northeast Region
Northeast Regional Office
2500 S. Halliburton
Kirksville, MO 63501-4664
660/785-2420
Fax: 660/785-2553

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653 Clinic Road
Hannibal, MO 63401
573/248-2530
Fax: 573/248-2532

St. Louis Region
Regional Office - August A. Busch Mem. CA
2360 Hwy. D
St. Charles, MO 63304-9617
636/441-4554
Fax: 636/926-9125

Southeast Region
Southeast Regional Office
2302 County Park Dr.
Cape Girardeau, MO 63701-1842
573/290-5730
Fax: 573/290-5736

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West Central Regional Office
P.O. Box 368
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Fax: 660/885-5038

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1014 Thompson Blvd.
Sedalia, MO 65301-2243
660/530-5500
Fax: 660/530-5504

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Lake Rd. 5-88
Camdenton, MO 65020-1115
573/346-2210
Fax: 573/346-7420

Lebanon Office
2350 S. Jefferson
Lebanon, MO 65536-4234
417/532-7612
Fax: 417/532-7031

East Central Region
East Central Regional Office
P.O. Box 248
375 S. Hwy. 185
Sullivan, MO 63080
573/468-3335
Fax: 573/468-5434

Southwest Region
Southwest Regional Office
2630 North Mayfair
Springfield, MO 65803-5018
417/895-6880
Fax: 417/895-6910

Ozark Region
Ozark Regional Office
Box 138
618 Preacher Roe Blvd.
West Plains, MO 65775-0138
417/256-7161
Fax: 417/256-0429

AQUAGUIDE
MISSOURI DEPARTMENT OF CONSERVATION

Managing Strip Pits as Fisheries

Missouri's strip pits and quarries impound about 9,000 surface acres of water. Most of these pits have the potential of producing many hours of quality fishing. However, strip pits present some special problems to the owner or manager wanting to manage these waters for fishing. Water quality is the most serious problem followed by lack of shallow water habitat.

Acid Water

Mining companies create strip pits by removing deep layers of coal, bedrock or other valuable minerals from the earth. Unfortunately, during this process, acid-producing materials are left exposed in mined areas. When these exposed materials come into contact with water, a chemical reaction occurs that produces acid water. This is the reason strip pits may contain water high in acidity.

Acidity is expressed as pH units, which range from 1 (most acid) to 14 (non-acid or basic). A neutral pH is 7. For good fish production a pH range of 6 to 9 is necessary. Water having a pH of less than 6 results in poor fish reproduction, growth and survival.

Strip pit owners should test the acidity of the water before they invest in stocking and managing pits for fishing. Acidity can be tested with an inexpensive pH test kit, purchased from a pet store.

Correcting an acid water problem can be very time consuming and costly. Once neutralized, the water can again become acidified from runoff or ground water that has flowed over acid sediments from within the strip pit, basin or watershed. Unless the

source of acid sediments are known, only limited success can be expected from efforts to neutralize acid strip pits. If the water has pH of less than 6, an engineer or hydrologist should be consulted to determine the source of the acid sediment. The Missouri Department of Natural Resources, Land Reclamation Program is the agency responsible for correcting problems associated with past coal mining on eligible sites within the state. The Land Reclamation Program has available a publication concerning reclamation planning and pond neutralization for landowners requiring more specific information.

Contact:

Department of Natural Resources
Division of Environmental Quality
Land Reclamation Program
PO Box 176
Jefferson City, MO 65102
Phone (573) 751-4041

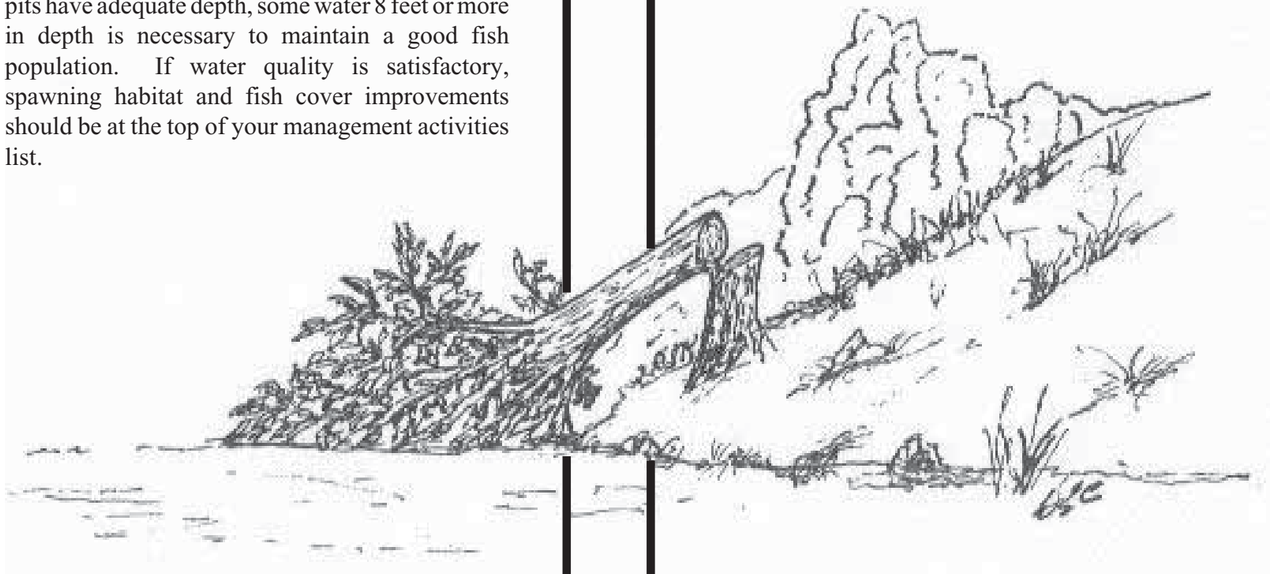
Fish Habitat and Spawning

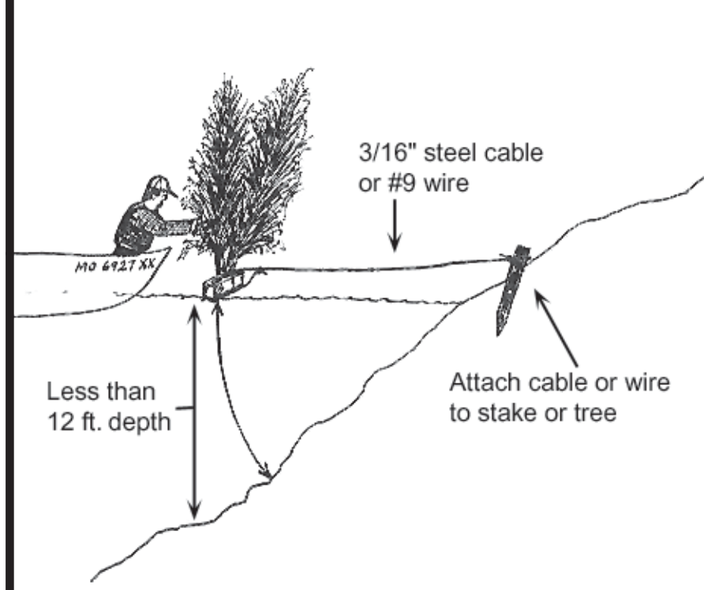
Lack of fish cover and shallow water spawning habitat can also limit quality fishing in strip pits. Fish cover can be added inexpensively and may be constructed from a variety of materials. Natural materials provide the best fish habitat. Cedar trees and bundles of tree limbs are the most effective for making underwater brush piles. Weight the bundles with rock, concrete filled containers or concrete blocks. Use nylon rope or aluminum wire to tie the weights to the end of the trees or branch bundles. This will allow the tree to stand upright when dropped into the water.

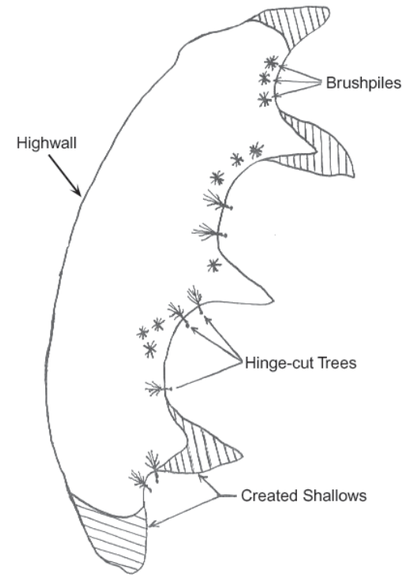
Brush pile location is very important. Place them in water which is at least 4 feet deep but less than 12 feet. Brush piles along steep banks can be cabled to trees or stakes along the shore to prevent them from sliding into deep water (Figure 1). It is better to place several structures within a few yards of each other than scattering them throughout the pit.

Older pits often have live or dead trees standing along the shoreline. Fell some of the trees into the water using a chainsaw to make the cut. Leave the tree partially attached to the stump by sawing on the landward side of the tree until the tree can be pushed over into the water (Figure 2). This method is called hinge cutting. **CAUTION! THE OPERATION OF A CHAINSAW AND HINGE CUTTING TREES CAN BE DANGEROUS.** Hinge cutting should be done by an experienced chainsaw operator using proper safety equipment.

Although costly, construction of shallow water spawning habitat will improve conditions for producing young fish. Water 4 feet or less in depth is also important for the production of insects. Insects are the major food for most fish during their first year of life. These shallow water areas should total 5 to 10% of the entire surface area of the pit and include several hundred feet of shoreline preferably vegetated with aquatic plants (Figure 3). Construction equipment will likely be needed for creating shallow water areas. Although most strip pits have adequate depth, some water 8 feet or more in depth is necessary to maintain a good fish population. If water quality is satisfactory, spawning habitat and fish cover improvements should be at the top of your management activities list.







Typical Strip Pit with Fish Habitat Improvements

Fish Management

Largemouth bass, bluegill and channel catfish are preferred for producing good fishing in strip pits. In new or fishless strip pits that have greater than 5% of the surface area that is less than 4 feet deep, stock 75 bass, 400 bluegill and 75 channel catfish per acre. If less than 5% of the strip pit water is 4 feel deep or less, stock 50 bass, 250 bluegill and 50 channel catfish per surface acre. Some supplemental stockings may be necessary.

In older strip pits the presence and condition of an existing fish population can be determined by angling. Contact your local Missouri Department of Conservation Fisheries Biologist to obtain a copy of the Aquaguide titled, “Good Record Keeping Means Better Fishing”. Follow the outlined procedures to conduct the sampling and evaluation of your existing fish population. Return the collected data to your local fisheries biologist for further management recommendations.

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